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09/518,551	03/03/2000	Govindaraju Gnanasivam	A-66977/RMA/LM	5668

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EXAMINER

KING, JUSTIN

ART UNIT	PAPER NUMBER
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2111

DATE MAILED: 05/06/2004

18

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/518,551

Applicant(s)

GNANASIVAM ET AL.

Examiner

Justin I. King

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-9,11-18,21-26,28 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 and 10 is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-2, 7-8, 11, 21-26, and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Uchihori et al. (U.S. Patent No. 5,996,014) in view of Yoneya et al. (U.S. Patent No. 6,587,640).

Referring to claim 1: Uchihori discloses a method for managing access to a logical I/O device (figure 3, structures 31-1 to 31-m), said method comprising: communicatively coupling first and second nodes (figure 3, element servers), having respective first and second bus controllers (figure 3, structures 32-11 to 32-1m) having respective first and second reservation tables (column 13, lines 11-14 and 37-40); and said logical I/O device, by means of a bus and said first and second bus controllers (column 2, lines 39-42); receiving on said first controller a request to reserve said logical I/O device and updating the first reservation table to reflect

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reservation of the logical I/O device; and communicating by means of said bus from said first to said second controller a reservation request for said logical I/O device for updating by said second controller of said second reservation table, in response to said receiving (column 13, lines 37-40). Uchihori does not explicitly disclose the RAID. Yoneya discloses that it is known to employ the RAID architecture in a video server. Hence, it would have been obvious to one having ordinary skill in the computer art at the time Applicant made the invention to adapt Yoneya's teaching to Uchihori because Yoneya teaches one recover the hard drive failure and support multi-channel video by RAID architecture (column 1, lines 38-41).

Referring to claim 2: Since each of Uchihori's element servers updates and synchronizes its own reservation table with each other, Uchihori's system reserves said logical I/O device for said first node within said second controller in response to said communicated reservation request.

Referring to claim 7: Uchihori discloses a computer-readable medium for data storage wherein is located a computer program including instructions for causing a first node (figure 3, structure 32-1) in a computer system, having a first bus controller (figure 3, structure 32-11) having a first reservation table (column 13, lines 11-14 and 37-40), to manage access to a logical I/O device (figure 3, structure 31-1 to 31-m) in said computer system by: receiving on said first controller a request to reserve said logical I/O device; updating the first reservation table to reflect reservation of the logical I/O device and communicating in response to receiving said request, a reservation request for said logical I/O device from said first controller to a second controller of a second node for updating of a second reservation table by said second controller (column 13, lines 37-41). Uchihori does not explicitly disclose the RAID. Yoneya discloses that

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it is known to employ the RAID architecture in a video server. Hence, it would have been obvious to one having ordinary skill in the computer art at the time Applicant made the invention to adapt Yoneya's teaching to Uchihori because Yoneya teaches one recover the hard drive failure and support multi-channel video by RAID architecture (column 1, lines 38-41).

Referring to claim 8: Since each of Uchihori's element servers updates and synchronizes its own reservation table with each other, Uchihori's system reserves said logical I/O device for said first node within said second controller in response to said communicated reservation request.

Referring to claim 11: Uchihori discloses a computer system comprising: at least one logical I/O device (figure 3, structure 32-1 to 320m); first and second nodes (figure 3, element servers) having respective first and second bus controllers (figure 3, structure 32-11 to 32-N1) having respective first and second reservation tables (column 13, lines 11-14 and 37-40), said first controller comprising: a computer-readable medium storing a computer program for managing access to said logical I/O device by a first node in said computer system, said computer program including instructions for: receiving on said first controller a request to reserve said logical I/O device; updating the first reservation table to reflect reservation of the logical I/O device; and communicating in response to receiving said request, a reservation request for said logical I/O device from said first controller to a second controller of a second node for updating of the second reservation table by said second controller; a CPU, coupled to said computer-readable medium, for executing said computer program stored in said medium; and a bus communicatively coupling said first and second nodes and said logical I/O device by means of said first and second controllers (column 2, lines 38-42, column 13, lines 37-40).

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Uchihori does not explicitly disclose the RAID. Yoneya discloses that it is known to employ the RAID architecture in a video server. Hence, it would have been obvious to one having ordinary skill in the computer art at the time Applicant made the invention to adapt Yoneya's teaching to Uchihori because Yoneya teaches one recover the hard drive failure and support multi-channel video by RAID architecture (column 1, lines 38-41).

Referring to claim 21: Uchihori discloses an apparatus for managing access to a logical I/O device (figure 3, structure 31-1), said apparatus comprising: means for communicatively coupling first and second nodes (figure 3, element servers), having respective first and second bus controllers (figure 3, structure 32-11 to 32-N1) having respective first and second reservation tables (column 13, lines 11-14 and 37-42) and logical I/O device; means for receiving on said first controller a request to release said logical I/O device; means for updating the first reservation table to reflect release of the logical I/O device and means for communicating by means of said bus from said first to said second controller a request for said logical I/O device for updating of said second reservation table by said second controller, in response to said receiving. Uchihori does not explicitly disclose the RAID. Yoneya discloses that it is known to employ the RAID architecture in a video server. Hence, it would have been obvious to one having ordinary skill in the computer art at the time Applicant made the invention to adapt Yoneya's teaching to Uchihori because Yoneya teaches one recover the hard drive failure and support multi-channel video by RAID architecture (column 1, lines 38-41).

Referring to claim 22: Uchihori discloses the logical input/output device is selected from a plurality of logical input/output devices coupled with a physical input/output device (figure 3).

Referring to claim 23: Uchihori discloses a bus (figure 3).

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Referring to claim 24: Uchihori discloses a plurality of physical I/O devices (figure 3).

Referring to claim 25: Uchihori discloses the RAID (column 5, lines 36), which said logical I/O device is selected from a plurality of logical I/O devices, with each logical I/O device defined in part on a common physical I/O device.

Referring to claim 26 Uchihori discloses that said logical I/O device spans a plurality of physical I/O devices (figure 3), and said reservation request reserves said logical I/O device without reserving each of said plurality of physical I/O devices (column 2, lines 38-42).

Referring to claim 28: Uchihori discloses the SCSI devices (column 5, line 80).

Referring to claim 29: Since each of Uchihori's element servers updates and synchronizes its own reservation table with each other, Uchihori receives successful communication from said second controller; and completing the reservation command to an operating system after receiving said successful communication.

4. Claims 3, 5-6, 9, and 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Uchihori, in view of Yoneya, and in further view of Hammersley et al. (U.S. Patent No. 5,392,433).

Referring to claim 3: Although neither Uchihori nor Yoneya explicitly discloses the steps of resource availability and the acknowledgement of the available status, an Official Notice is taken that such practice is well-known in the computer art. Furthermore, Hammersley teaches the failure response due to the unavailability and the confirmation on successful reservation (figures 5A1-2, 5B). Hence, it would have been obvious to one having ordinary skill in the

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computer art to adopt Hammersley's teaching to Uchihori because Hammersley teaches one to confirm the requested shared resource's status for proper handling the operation.

Referring to claim 5: Uchihori discloses multi-logical-devices (figure 3, structures 31-1 to 31-m) and the third controller (figure 3, element server 32-n).

Referring to claims 6 and 9: Claims are rejected as the claim 3's argument above.

Referring to claims 12 and 14: As discussed above, Uchihori discloses a method for managing access to a logical I/O device, said method comprising: communicatively coupling first and second nodes having respective first and second bus controllers having respective first and second reservation tables, and said logical I/O device, by means of a bus and said first and second controllers; receiving, on said first controller, a request to said logical I/O device; updating the first reservation table to reflect the request of the logical I/O device; and communicating a request for said logical I/O device over said bus from said first controller to said second controller for updating of a second reservation table by said second controller, in response to said receipt of said request.

Uchihori does not explicitly disclose the request is a release request. Hammersley teaches a release request on a shared resource (figure 6). Hence, it would have been obvious to one having ordinary skill in the computer art to adopt Hammersley's teaching to Uchihori because Hammersley enables one to free up one particular shared resource from exclusive usage.

Referring to claim 13: Since each of Uchihori's element servers updates and synchronizes its own reservation table with each other, Uchihori's system reserves said logical I/O device for said first node within said second controller in response to said communicated reservation request.

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Referring to claim 15: Claim is rejected as the claim 5's argument above.

Referring to claims 16-18: Uchihori discloses a computer-readable medium for data storage wherein is located a computer program for causing a first node (figure 3, element servers) in a computer system, having a first bus controller (figure 3, structure 32-11) having a first reservation table (column 13, lines 11-14 and 37-40), to manage access to a logical I/O device (figure 3, structure 31-1) in said computer system by: receiving on said first controller a request to release said logical I/O device (column 2, lines 38-42); updating the first reservation table to reflect release of the logical I/O device (column 13, lines 37-40); and communicating by means of a bus from said first controller to a second controller of a second node a request for said logical I/O device for updating of a second reservation table by said second controller, in response to said receiving. Uchihori does not explicitly disclose the RAID. Yoneya discloses that it is known to employ the RAID architecture in a video server. Hence, it would have been obvious to one having ordinary skill in the computer art at the time Applicant made the invention to adapt Yoneya's teaching to Uchihori because Yoneya teaches one recover the hard drive failure and support multi-channel video by RAID architecture (column 1, lines 38-41).

Although neither Uchihori nor Yoneya explicitly discloses the request is a release request, an Official Notice is taken that the release request is well known in task prioritizing and task preemption. Furthermore, Hammersley teaches a release request on a shared resource (figure 6). Hence, it would have been obvious to one having ordinary skill in the computer art to adopt Hammersley's teaching to Uchihori.

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Response to Arguments

5. In response to applicant's argument that the amended RAID is not taught or disclosed by the prior arts on the record, please see the revised rejections above.

Allowable Subject Matter

6. Claims 4 and 10 are allowed.

7. The following is a statement of reasons of allowable subject matter: The prior arts do not explicitly disclose any computer share-resource management including the steps in claims 4 and 10, which are receiving the response to the communicated reservation request; aborting the method for managing access when said response indicates failure to reserve and said first controller is subordinate to said second controller; otherwise, delaying and communicating again a reservation request for said logical I/O device when said response indicates failure to reserve and said first controller is dominant to said second controller; and otherwise, responding, indicating success, to said received reservation request.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

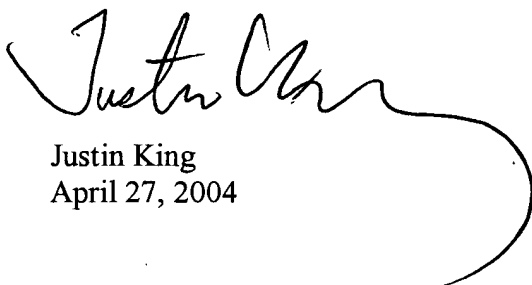
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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin I. King whose telephone number is 703-305-4571. The examiner can normally be reached on Monday through Friday, 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 703-308-3110. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5631.



Justin King
April 27, 2004



XUAN M. THAI
PRIMARY EXAMINER
AU 2111